

Mercury

Human Health Risk	M
Ecological Risk	M - H
Socioeconomic Risk	M - L

Mercury is a naturally occurring element that has been used in a variety of industrial and commercial applications. The primary source of mercury in the environment is air deposition—quantities of mercury are released from waste incinerators, manufacturing processes, and as a by-product of coal-burning power plants. Mercury emissions may travel hundreds of miles before precipitating out of the atmosphere and depositing on land. Thus, a portion of New Jersey's mercury deposition originates out of state. In aquatic environments, deposited mercury will react with bacteria to form methylmercury, an organic form that accumulates in biological (e.g., fish) tissue. It is this organic form of mercury that presents the greatest human and ecological hazards.

What's at risk?

Children whose mothers consume mercury-contaminated fish during pregnancy are at risk for neurological-developmental effects. A small number of private wells in New Jersey may also contain unsafe concentrations of mercury. Individuals with large numbers of dental fillings may be at increased risk, as are people who intentionally use mercury in their homes for folk/cultural reasons. Atmospheric deposition of mercury affects ecosystems statewide. Wildlife, particularly fish-eating species near the top of the food chain, are also at risk for adverse chronic effects. Areas at higher risk would include low pH systems such as the Pine Barrens, and near hazardous waste sites.

What are the human health impacts in New Jersey?

A child exposed to methyl mercury *in utero* may exhibit subtle cognitive deficits. About 10-20% of pregnant women in New Jersey who consume fish may expose their children to unsafe levels; thus an estimated 11,000-24,000 infants may be exposed each year. Adults who consume large amounts of fish with elevated levels of mercury may also experience neurological symptoms including tremors, weakness, and motor difficulties. Of 2,239 private wells tested in Ocean and Atlantic counties, 59% had detectable levels of mercury, and 14% had levels that exceeded the Maximum Contaminant Level (MCL). These percentages, however, cannot be generalized to New Jersey or to Ocean and Atlantic County residents. There are no reliable estimates of the numbers of people using mercury

intentionally, or how many may be at greater risk as a result of dental work.

What are the ecological impacts in New Jersey?

Mercury may cause adverse impacts on aquatic and terrestrial species including reproductive, behavioral and growth effects. Fish and wildlife at the top of aquatic food chains (fish-eaters) are especially at risk to the toxic effects of mercury, and because monitoring is limited, actual risks to aquatic species may be underestimated. Based on the samples that have been collected at some locations, mercury concentrations in soils, sediments, water, and fish tissue appear to exceed ecological benchmarks a significant portion of the time.

What are the socioeconomic impacts in New Jersey?

Statewide, the costs of mercury pollution are estimated at \$2 million to \$113 million per year. This includes medical costs for 1% of exposed infants, along with the costs of remediation for contaminated wells in the Pinelands area.

What's being done?

Fish consumption advisories are intended to limit consumption of mercury-contaminated fish, and increased education and public awareness should help reduce human health risks. Mercury in some consumer products has been reduced. Controls on emissions further reduce atmospheric concentrations. Assistance is provided for households with private wells exceeding the MCL.